We claim:

1. A semiconductor wafer, comprising:

a plurality of pits in the semiconductor wafer, the pits being arranged in an information-providing pattern and being readable before, during and after completion of processing on the wafer.

2. The wafer according to claim 1, wherein the readability of the pits is provided by the pits having sufficient contrast with surrounding portions of the wafer.

3. The wafer according to claim 2, wherein the pits are arranged in a region of the wafer, wherein the contrast is provided by ion implant in the region.

4. The wafer according to claim 3, wherein the ion implant is carried out to a depth and the pits have a depth greater than the ion implant depth.

5. The wafer according to claim 2, wherein the pits are arranged in a region of the wafer, wherein the contrast is provided by the pits having a sufficient depth.

6. The wafer according to claim 1, wherein the pattern comprises at least one of a bar code, a digital pattern, a binary pattern, or an alphanumeric pattern.

7. The wafer according to claim 6, wherein the digital pattern comprises long and short pits.

8. The wafer according to claim 1, wherein the plurality of pits comprise pits of a first shape and pits of a second shape.

9. The wafer according to claim 1, wherein the pits are on at least one surface of the wafer selected from the group consisting of a front surface, a back surface, and a side surface.

10. The wafer according to claim 1, wherein the pits are at least 2.5 um deep.

11. The wafer according to claim 1, wherein the pits are on a side surface of the wafer extending from a front surface of the wafer to a back surface of the wafer.

12. The wafer according to claim 11, wherein the pits on the side surface of the wafer are formed prior to slicing the wafer from a boule by providing diagonal lines in the boule to provide a unique pattern on each wafer sliced from the boule.

13. The wafer according to claim 1, wherein the pits are readable by a reader's eye.

14. The wafer according to claim 1, wherein the pits are readable with a laser reading device.

15. The wafer according to claim 1, further comprising a coating on the surface of the pits.

16. The wafer according to claim 1, wherein the pits have a width of at most about 1 mm and a depth of at most about 1 mm.

17. The wafer according to claim 1, wherein a bottom surface of the pits is

curved.

18. The wafer according to claim 1, wherein at least one of the pits is perpendicular to a top surface and a bottom surface of the wafer.

19. The wafer according to claim 1, wherein at least one of the pits is angled with respect to a line perpendicular to a top surface and a bottom surface of the wafer.

20. The wafer according to claim 1, wherein at least one of the pits has curved sidewalls.

21. The wafer according to claim 1, wherein the pits have at least two different widths.

22. The wafer according to claim 1, wherein the pits are machine-readable.

23. The wafer according to claim 8, wherein the pits are arranged in the back surface of the wafer.

24. The wafer according to claim 23, wherein groups of the pits have the shape of at least one of letters and numbers.

25. The wafer according to claim 24, wherein each group of pits has a width of about 2 mm and a height of about 5 mm.

26. The wafer according to claim 24, wherein adjacent groups of pits are separated from each other by a distance of about 2 mm.

27. The wafer according to claim 24, wherein each group of pits includes a machine-readable set of spaces for pits, each space comprising 2 columns each comprising 32 pits.

28. The wafer according to claim 1, wherein light striking spaces between the pits form interference fringes.

29. The wafer according to claim 1, wherein light striking the pits is not reflected.

30. The wafer according to claim 1, wherein light striking the pits is reflected with a phase change.

31. The wafer according to claim 1, wherein the pits comprise at least one location pit for providing locational reference to a plurality of informational pits.

32. The wafer according to claim 31, wherein the location pit is arranged in a side edge of the wafer and the informational pits are located in a top surface or a bottom surface of the wafer.

33. The wafer according to claim 1, wherein the pits have the same widths and at least two different lengths.

34. The wafer according to claim 33, wherein the pits are arranged in at least one line.

35. The wafer according to claim 33, wherein adjacent pits in a line or in adjacent lines are separated by a distance of at least 5 Fm.

36. The wafer according to claim 15, wherein the coating is sapphire or silicon carbide.

37. A method of encoding information on a semiconductor wafer, comprising:

converting the information into a digital form; and

forming pits readable before, during and after completion of processing on the wafer corresponding to the digital form of the information in the semiconductor wafer.

38. The method according to claim 37, wherein forming the pits comprises:

forming a line of pits having two different lengths, the line of pits corresponding to the digital form of the information.

39. The method according to claim 37, further comprising:

forming a reference point, such that the pits are located a predetermined distance from the reference point.

40. The method according to claim 37, further comprising:

providing the pits with a detectable contrast with respect to surrounding portions of the wafer.

41. The method according to claim 37, wherein the pits are formed prior to cutting the wafer from a boule and forming the pits comprises:

forming a first, curved groove in the boule;

forming at least one linear groove in the boule; and

slicing the boule into wafers.

42. The method according to claim 37, further comprising:

coating the pits with a coating.

43. The method according to claim 37, further comprising:
reading the information represented by the pits.

44. The method according to claim 43, wherein the information is read with a machine.

45. The method according to claim 43, wherein the information is readable by an unaided human eye.

46. The method according to claim 37, wherein said pits are formed before processing of the wafer begins, during wafer processing, or after wafer processing is completed.

47. The method according to claim 46, wherein said pits are formed during wafer processing to record information about the processing.

48. The method according to claim 46, wherein pits previously formed are altered.

49. The method according to claim 46, further comprising the step of reading pits formed during processing and using the information read to determine a subsequent process parameter.

50. The method according to claim 37, wherein pits previously formed are invalidated.

51. A system for encoding information on a semiconductor wafer and reading the information, the system comprising:

a plurality of pits formed on the semiconductor wafer in an information-providing pattern and being readable before, during and after completion of processing on the wafer; and

means for reading the information encoded by the pits.

52. The system according to claim 51, wherein the information reading means comprises at least one laser.

53. The system according to claim 51, wherein the information reading means comprises at least one interferometer.

54. The system according to claim 51, wherein the information reading means comprises at least one linear diode array.